

PATENT APPLN. NO. 10/563,126  
RESPONSE UNDER 37 C.F.R. §1.111

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NON-FINAL

REMARKS

Claims 1 and 2 have been amended to include the limitation of claim 7, i.e., to recite that the zirconium compound that adheres onto the particle surfaces of the lithium cobalt oxide adheres in the form of particles having a particle diameter of from 100 nm to 3  $\mu$ m.

Claim 2 has also been amended to recite that the positive active material is a product obtained by firing a mixture of a lithium salt, tricobalt tetraoxide ( $\text{Co}_3\text{O}_4$ ) and zirconium oxide ( $\text{ZrO}_2$ ). This amendment is supported by the description in paragraph [0036].

Claim 7 has been canceled.

New claims 11 and 12, which depend on claims 1 and 2, respectively, and recite that at least 80% of the particle surface of said lithium cobalt oxide is left uncovered, i.e., not covered by the particles of the zirconium compound, have been added to the application. Claims 11 and 12 are supported by the descriptions in paragraphs [0010] and [0037] of the specification.

The rejections made in the Action and discussed below are not correct, particularly as applied to the claims as amended.

*Claim Rejections - 35 USC § 112*

Claims 4 and 10 are rejected under 35 U.S.C. § 112, second

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paragraph, as being indefinite. The position of the Office is that it is unclear how the recitation in these claims of "a ratio in charge capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.2, when said end-of-charge voltage of the battery is prescribed at 4.4 V" (emphasis applicant's), limits the structure of the battery. The Office suggests that these claims are reciting a use without any steps.

The recitation in claims 4 and 10 noted by the Office is not a recitation of an intended use. It is a recitation of a property of the battery and limits the structure, or composition, of the battery. The ratio in charge capacity of the negative electrode to the positive electrode (negative electrode/positive electrode) is determined by limiting the amounts of positive electrode and negative electrode active materials as well as the end-of-charge voltage. Higher end-of-charge voltage provides larger charge capacity of the positive electrode (paragraph [0006]).

Withdrawal of the 35 U.S.C. § 112, second paragraph, rejection is requested.

*Claim Rejections - 35 USC § 101*

Claims 4 and 10 are also rejected under 35 U.S.C. § 101 as being improper process claims. The position of the Office, as

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explained above with respect to the 35 U.S.C. § 112, second paragraph, rejection is that these claims recite a use without the recitation of process steps.

This rejection is not proper for the reasons explained above with respect to the 35 U.S.C. § 112, second paragraph, rejection. The limitation recited in claims 4 and 10 of "a ratio in charge capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.2, when said end-of-charge voltage of the battery is prescribed at 4.4 V" limits the structure, or composition, of the battery. It is not a recitation of an intended use.

Withdrawal of the 35 U.S.C. § 101 rejection is also requested.

*Claim Rejections - 35 USC § 102*

Yonekawa

Claims 1-7 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2002-358963 (identified by the Office as "Yonekawa"). The Office cites various of the paragraphs of Yonekawa that are alleged to disclose each of the limitations of the rejected claims.

Yonekawa does not support the 35 U.S.C. § 102 rejection of claims 1-7 and 10.

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Yonekawa discloses in paragraph [0009] that in the obtained lithium cobalt composite oxide, a part of Co is uniformly replaced by zirconium atom without leaving unreacted  $ZrO_2$ . Yonekawa further discloses in paragraph [0032] that " $ZrO_2$  does not remain in the form separated with the lithium cobalt system multiple oxide" and in paragraph [0033] that in the lithium cobalt composite oxide of its invention, Co site has been replaced by Zr so that neither  $ZrO_2$  nor  $Li_2ZrO_3$  substantially exists. As understood from these descriptions, all of the Zr atoms exist in replaced Co sites.

Therefore, Yonekawa does not disclose a zirconium compound which adheres onto particle surfaces of the lithium cobalt oxide and does not disclose that the zirconium compound adheres onto the particle surfaces of the lithium cobalt oxide in the form of particles having a particle diameter of from 100 nm to 3  $\mu m$ .

Withdrawal of the 35 U.S.C. § 102 rejection of claims 1-7 and 10 over Yonekawa is requested.

Li

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by CN 149527 (identified by the Office as "Li").

Li was published on April 28, 2004. The present application claims priority based on the September 9, 2003, filing date of Japanese patent application JP 2003-317456. An English translation

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of JP 2003-317456 is submitted herewith to perfect applicants' claim to priority and remove Li as a reference against the claims of the present application.

Withdrawal of the 35 U.S.C. § 102 rejection of claim 1 over Li is requested.

Le

Claim 1 is rejected under 35 U.S.C. § 102(b) as being anticipated by US 2004/0121234 (identified by the Office as "Le").

This rejection has been overcome by the amendment to claim 1 to include the limitations of claim 7, which is not included in the 35 U.S.C. § 102(b) rejection based on Le.

Withdrawal of the 35 U.S.C. § 102 rejection of claim 1 over Le is requested.

*Claim Rejections - 35 USC § 102/103*

Li

Claims 2-4, 6 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Li.

This rejection is now moot. Li, as noted above, has been removed as a reference against the claims of the present application by the submission of an English translation of applicants' priority application.

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Withdrawal of the 35 U.S.C. § 102(b) or, alternative, 35 U.S.C. § 103(a) rejection of claims 2-4, 6 and 10 over Li is requested.

Le

Claims 2-4, 6, 7 and 10 are also rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Le.

Applicants note that the Office alleges that Le discloses the particle size of the zirconium-containing particles recited in claim 7. This is not correct. Le discloses in paragraph [0036] that the metal oxide particles have an average diameter of less than 100 nanometers and, preferably, an average diameter of less than about 30 nanometers and, more preferably, less than 15 nanometers. Le leads away from the particle size of metal oxide particles of from 100 nm to 3 µm originally recited in claim 7 and now recited in claim 2.

Therefore, Le fails to support the 35 U.S.C. § 102(b) and, alternative, 35 U.S.C. § 103(a) rejections of claims 2-4, 6, 7 and 10.

Withdrawal of the 35 U.S.C. § 102(b) or, alternative, 35 U.S.C. § 103(a) rejection of claims 2-4, 6, 7 and 10 over Le is requested.

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*Claim Rejections - 35 USC § 103*

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Le in view of U.S. Patent No. 5,030,526 (identified by the Office as Shen).

This rejection depends on the sufficiency of Le to support the 35 U.S.C. § 103/35 U.S.C. § 103(a) rejection of claim 2 on which claim 5 depends. The rejection of claim 2 over Le has been overcome. Therefore, claim 5 is prima facie patentable.

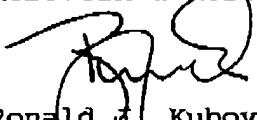
The foregoing is believed to be a complete and proper response to the Office Action dated September 18, 2009.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

KUBOVCIK & KUBOVCIK



Ronald J. Kubovcik  
Reg. No. 25,401

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Crystal Gateway 3  
Suite 1105  
1215 South Clark Street  
Arlington, VA 22202  
Tel: (703) 412-9494  
Fax: (703) 412-9345  
RJK/ff

Attachment: English translation of JP 2003-317456 and statement  
of translator